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Poster Session:

Improving Public Confidence in the Regulation of Transportation of Nuclear Materials

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The U. S. Nuclear Regulatory Commission (NRC), an independent regulatory body, has a very important mission. That mission is, to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment by regulating the Nation's civilian uses of nuclear fuels and materials. The NRC has developed a strategic plan to facilitate its success in conducting its mission. This plan includes key performance goals that guide and channel efforts of the NRC staff. One of the performance goals is to increase public confidence that the NRC is carrying out its mission. Regarding this performance goal, the NRC Strategic Plan states that the staff will employ the following strategies to increase public confidence:

Make public participation in the regulatory process more accessible. Listen to the public's concerns and involve stakeholders more fully in the regulatory process.

Communicate more clearly. Add more focus, clarity, and consistency to messages; be timely, and present candid and factual information in the proper context with respect to the risk of the activity.

Continue to enhance the NRC's accountability and credibility by being a well-managed, independent regulatory agency. Increase efforts to share accomplishments with the public.

Report on the performance of licensees in an open and objective manner.

Continue to foster an environment in which safety issues can be openly identified without fear of retribution.

Before starting a program to improve public confidence, it is important to adequately plan what needs to be done. This planning must be comprehensive and should reflect the essence of the NRC Strategic Plan discussed above. Accordingly, the NRC staff have developed communication plans for the various arenas, including high level waste and transportation, to include the following information: strategic communication goals, key messages, target audiences, specific tools to be used, and projected resources and schedules. The following is a discussion of what has been done for the transportation arena to improve public confidence.

The NRC issues regulations that deal with the transportation of spent nuclear fuel and other radioactive materials. For this area of agency responsibility, the staff in the Office of Nuclear Materials Safety and Safeguards have taken an active role to increase public confidence in NRC's regulatory activities. Examples of key actions include (1) public outreach efforts for a recent proposed change to NRC transportation regulations, (2) the conduct of several meetings with citizens and industry groups to gain input to the planing of the Package Performance Study (PPS), (a new transportation study of the performance of spent fuel transportation packages in severe accident conditions), and (3) continued interaction with communities in Nevada to address NRC's role in the regulatory approval of a proposed design of a permanent geological repository for spent fuel, and to explain NRC's role in the regulation of the safe and secure transportation of spent nuclear fuel.

The following is a summary for each action.

(1) Changes to 10 CFR Part 71-Rulemaking Outreach Meetings

Both the NRC and the U.S. Department of Transportation (DOT) have regulations that deal with the transportation of radioactive materials and their regulations complement each other. Both agencies periodically modify their regulations to harmonize with the transportation standards that are issued by the International Atomic Energy Agency (IAEA). Thus, both agencies support international meetings with the IAEA to provide input to revisions to IAEA transportation safety standards. Harmonization changes to U.S. transportation regulations are made to ensure that international shipments of hazardous materials to and from our country are performed under consistent guidelines, safety standards, and that U.S. regulations do not place any unnecessary burden on international trade. Both the DOT and NRC issued proposed rule changes in 2002 to make a number of revisions to adopt recent IAEA standards changes (Series No. ST-1, December 1996 and Series No. TS-R-1, June 2000). Each proposed rule change included a request for public comments on the rule changes that could be provided to the agencies in writing or electronically via each agency's website. To provide increased opportunity for public comments and to perhaps improve the quality and applicability of the comments, the agencies chose to conduct a number of public meetings in various locations. During these meetings, the regulatory staff discussed the nature of the proposed changes to the regulations and requested that those who attended the meetings provide verbal comments on the rules if so desired. These comments were transcribed and became a part of the official rulemaking record as comments that would have to be evaluated during the development of the final rules. The NRC staff found many of the public comments to be comprehensive and they will contribute to the ultimate development of technically sound final rule language. In addition, the staff received positive feedback from several meeting attendees regarding the opportunity that had been provided for the public to play a role in the rulemaking process.

(2) Package Performance Study (PPS) Meetings

The NRC is conducting a new transportation study called the Package Performance Study. The purpose of this study is to update the NRC's evaluation of the level of protection that is provided by NRC certified spent fuel transportation package designs (casks) under severe accident conditions. Severe accident conditions are those that go beyond current NRC regulatory requirements and safety limits, but still are important to consider as extremely low probability events. This study will also provide additional confirmation of the results developed by previous NRC studies of spent fuel package performance and the risks associated with shipping spent fuel in NRC certified spent fuel casks. The risks associated with the transportation of highly radioactive spent nuclear fuel from nuclear power plants to an interim storage facility or to an underground geological permanent repository are important to the NRC and to the public. This is because the number of spent fuel shipments to such facilities if they are approved, built, and operated is expected to be far greater than the number of shipments that have been completed in the past 20 years in this country. In excess of 1300 shipments of spent nuclear fuel have been made in the past 20 years in NRC-certified packages in the U.S. without any release of radioactivity from the package(cask) to the environment. Despite an exceptional safety record and the findings from previous studies, many stakeholders in this country still have questions and concerns regarding the performance of spent fuel packages during highly unlikely accidents that are much more severe than any of the accidents that have occurred during past spent fuel shipments.

During the scoping phase for this study, the staff established three objectives: (1) examine the need to revisit the conclusions of a 1987 risk study (The Modal Study) and to evaluate their continued validity and to extend the methods used to develop those conclusions, (2) identify the study's need to confirm the risk results documented in a 2000 risk study, "Reexamination of Spent Fuel shipment Risk Estimates," and (3) increase public confidence in the safety of spent fuel transportation. Accordingly, the NRC staff held four public meetings during 1999 in three locations: one in Maryland, and three in Nevada. At each of these meetings, stakeholders from affected industry organizations and citizens discussed their concerns about the transportation of spent nuclear fuel. To further facilitate public participation in the project planning stage, an interactive project website (<http://ttd.sandia.gov/nrcmodal.htm>) was established in the fall of 1999. The results of the public meetings were summarized in a scoping report and the report was provided to interested parties and discussed in detail at four additional public meetings held in 2000, three in Nevada and one in Maryland. Further, in 2002, the staff issued the Spent Nuclear Fuel Transportation Package Performance Study Issues Report which was a summary of the above activities and issues that were raised in the 8 public meetings. This report is publically available. Currently the NRC staff is developing a testing protocol for the study and this will be discussed at several public meetings with interested stakeholders and are yet to be scheduled.

(3) Interaction with Citizens of Nevada

The U.S. has established by law the requirement to permanently store spent nuclear fuel produced by the 100+ operating nuclear reactors in one underground location that has been identified to be built by the U.S. Department of Energy (DOE) in the State of Nevada. This first-of-a-kind facility on its own has precipitated significant public concern about near and long-term safe operation and storage of spent nuclear fuel for a period of 10,000 years. In addition the need to safely and securely transport large numbers of casks loaded with the fuel from the

numerous reactor sites across the nation also has generated many concerns due to the sheer number of shipments, the specific routes and modes that will be used, and the new and ever present threat of future terrorist acts.

The NRC staff has prepared comprehensive communication plans as noted above and has completed a significant number of activities to deal with issues that generate public fear, emotional reactions, mistrust of government and its role, and mis-information and mis-interpretation of facts by stakeholders and the media. Key messages in the communication plan include the following: the NRC is an independent agency and is not part of DOE; the DOE by law has to provide an application describing the design for the permanent repository that must meet NRC regulations; NRC will conduct a thorough, independent review of the DOE application using the technical experts on its staff and those of a research organization that is totally independent of DOE; the NRC may approve the repository design, may reject the design, or may approve it with certain conditions; the review process which is specified to take up to 3 years will include a formal hearing to enable affected stakeholders to participate subject to specified criteria; transportation regulations are issued by both NRC and the DOT; NRC design requirements including testing or analysis make NRC certified casks robust and able to withstand most accidents; NRC risk studies confirm the adequacy of its regulations and a new transportation study will look at conditions beyond current regulations (with full scale testing); NRC security requirements for transportation of radioactive materials have been enhanced since the 9/11/01 events and cask vulnerability studies are underway; and the safety record for shipments is excellent in the U.S. and overseas.

Over the past several years, the NRC staff has interacted with a large number of representatives of local governments and concerned citizens throughout Nevada. This has included conducting many informal and some formal meetings with key county government and Native American tribal government officials, a significant number of open public meetings in cities across the state to discuss the messages noted above, and formal public meetings with DOE staff during pre-licensing discussions. Each interaction with stakeholders is a challenge based on the fact that different citizens attend each meeting, and many are unaware of the role of both DOE and the NRC. Therefore it is important that the NRC staff repeat key messages at each meeting so that an increasing number of interested citizens understand the NRC's mission, and its role as an independent regulatory body.

Many transportation issues are repeatedly raised by the press, and by stakeholders in meetings and by members of the U.S. Congress. It is important to improve public confidence by demonstrating that the NRC staff is aware of and understands these issues and stakeholder concerns. Also, NRC staff must be able to adequately address these issues and concerns when talking to the press at a meeting or over the phone, when talking one-on-one with a member of an activist group or a concerned citizen, or when answering a direct question in a public forum. The following is a list of issues that are frequently highlighted by stakeholders:

- shipping routes and modes have not been identified for movement of fuel to a repository;
- the total number of shipments that will be made to a permanent repository is not clear;
- emergency preparedness resources at the state and local level need to be augmented before any shipments occur;

- the NRC should require full scale testing for all shipping cask designs;
- trucks and trains loaded with radioactive materials are prime targets for terrorists;
- shipping casks will not withstand the force of a jet crash or missile attacks;
- human errors associated with a large number of shipments will result in accidents;
- local citizens need to be alerted before each shipment of spent fuel passes near their town or home;
- recent train accidents highlight the vulnerability of future spent fuel shipments to damage from accidents and potential radiation exposure to the public;
- transportation accidents may result in fuel rods being spread throughout a neighborhood and will cause many cases of cancer;
- NRC and DOT regulations are not rigorous enough to protect the public from accidents and exposure to radiation.

The NRC keeps these issues in mind when it chooses communication tools and methods to improve public confidence in the agency. Further, the staff considers the purpose of each interaction with the public along with the particular interests and issues for target audiences when detailed planning is conducted. But, clearly, not every comment or question from a stakeholder can be anticipated. On occasion, answers provided by NRC staff may be misinterpreted or mis-understood. We try, however, to make each communication or outreach action be an effective one and do conduct "lessons-learned" internal discussion sessions almost immediately after each public meeting or communication action to self-evaluate our performance and to improve our effectiveness for the next public interaction.

An additional challenge is to develop a productive and useful method to evaluate the effectiveness of a public outreach program. We have tried several and each has its limitations. One is to hand out a pre-printed public feedback form (Attachment 1) to each citizen attending our meetings. This form can be filled out and given to the NRC at the meeting or mailed, at no charge, to the NRC. It asks the attendee to provide feedback on the effectiveness of the meeting and to provide suggestions for improvements. Although we provide the forms to all attendees and specifically request voluntary completion of the forms at the beginning of each meeting, the number of forms that are completed and returned to us is usually very low.

Another source of feedback is the accuracy of media coverage of key issues in the area where outreach effort is conducted. If mis-information about transportation issues continues to be reflected in the media, then the outreach effectiveness may be ineffective. If the media accurately restates NRC provided information and it is repeated over time, then that indicates that NRC messages are being understood. The last evaluation method is documenting the receipt of informal, ad-hoc comments from citizens, politicians, and the media. It often is a very small sample but can indicate how well the staff is communicating.

An example that is very impressive is when a person who repeatedly criticizes the NRC in a public session tells you off the record that you are extremely credible and are doing a great job. It is important that such dialogues be remembered and shared with the communication team and with upper management.

To give an example of the type of information we are providing to the public in public meetings and in response to questions and comments on our transportation oversight, I am including as Attachment 2 , a set of slides that have been used at a number of public outreach meetings in the Nevada area. I will discuss some of them during the poster sessions and show how they present the key NRC messages discussed above.